

CLAIMS

1. A surface-coated cutting tool equipped with a coating layer on a substrate surface wherein:

5 said coating layer is formed from an inner layer formed on a substrate and an outermost layer formed over said inner layer:

 said inner layer is formed from a compound formed from a first element and a second element, said first element being at least one element selected from a group consisting of a periodic table group IVa, Va, VIa metal, Al, Si,
10 and B, and said second element being at least one element selected from a group consisting of B, C, N, and O, except, in said inner layer, a film formed solely from B is excluded:

 said outermost layer is formed from aluminum nitride or aluminum carbonitride, said outermost layer containing more than 0 and no more than
15 0.5 atomic percent chlorine.

2. A surface-coated cutting tool according to claim 1 wherein said outermost layer further includes oxygen.

3. A surface-coated cutting tool according to claim 1 wherein said inner layer includes a film formed from a compound containing Ti.

20 4. A surface-coated cutting tool according to claim 3 wherein said inner layer includes a film formed from TiCN having a columnar structure.

5. A surface-coated cutting tool according to claim 4 wherein said film formed from TiCN has a columnar structure with an aspect ratio of at least 3, where

an index of orientation TC(220), TC(311), or TC(422) of a crystal face (220), crystal face (311), and crystal face (422) respectively is a maximum index of orientation.

6. A surface-coated cutting tool according to claim 1 wherein said outermost
5 layer is formed with a film thickness that is no more than 1/2 a total film thickness of said inner layer.

7. A surface-coated cutting tool according to claim 1 wherein a film hardness of said outermost layer is lower than a hardness of at least one film forming said inner layer.

10 8. A surface-coated cutting tool according to claim 1 wherein a surface roughness of a section of said outermost layer near a ridge line of a cutting edge has an Rmax relative to a 5 micron reference length of no more than 1.3 microns, where roughness is measured by observing a cross-section of said cutting tool.

15 9. A surface-coated cutting tool according to claim 1 wherein said substrate is formed from a WC-based cemented carbide, cermet, high-speed steel, ceramic, a cubic boron nitride sintered body, or a silicon nitride sintered body.

10. A surface-coated cutting tool according to any one of claim 1 through claim 9 wherein said surface-coated cutting tool is a throw-away insert, a drill, or an
20 end mill.

11. A surface-coated cutting tool according to any one of claim 1 through claim 9 wherein: said surface-coated cutting tool is a throw-away insert; and said outermost layer has a film thickness of at least 0.03 microns and no more

than 10 microns, and said coating layer has a total film thickness of at least 0.1 microns and no more than 30 microns.

12. A surface-coated cutting tool according to any one of claim 1 through claim 9 wherein: said surface-coated cutting tool is a drill or an end mill; and

5 said outermost layer has a film thickness of at least 0.03 microns and no more than 8 microns, and said coating layer has a total film thickness of at least 0.1 microns and no more than 24 microns.